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What is claimed is:

1. A transfer mechanism for transferring an object to be processed, comprising:

5 a casing for defining a transfer chamber under a vacuum state, the casing having a transfer port for transferring the object between the transfer chamber and an outside thereof;

10 a guide rail substantially horizontally installed in the transfer chamber;

a moving body movably installed on the guide rail;

a horizontally driving unit for moving the moving body along the guide rail;

15 an elevation supporting structure including a holding body for holding the object and a supporting member for vertically movably connecting the holding body to the moving body; and

20 an elevation mechanism disposed at a position corresponding to the transfer port of the casing, for raising and lowering the supporting member of the elevation supporting structure with respect to the moving body.

2. The transfer mechanism of claim 1, wherein a horizontally transferring unit for moving the object only in
25 a horizontal direction through the transfer port is installed in the outside of the casing; and

the elevation mechanism performs a positioning of the object held in the holding body to a height corresponding to the horizontally transferring unit.

5 3. The transfer mechanism of claim 1, wherein the moving body includes a stopper for restricting the lowest position of the supporting member and moves while the supporting member is at the lowest position thereof.

10 4. The transfer mechanism of claim 1, wherein the elevation mechanism includes:

 a push rod extending through a bottom portion of the casing and making a contact with the supporting member;

 a vertically driving unit disposed in the outside of
15 the casing, for raising and lowering the push rod; and

 a sealing unit for airtightly sealing a gap between the push rod and the casing.

5. The transfer mechanism of claim 1, further comprising:

20 a position detecting linear scale installed on at least one of the moving body and the elevation supporting structure and extending in a moving direction of the moving body; and

 a plurality of position detecting sensors installed at
25 a height corresponding to the linear scale on an inner surface of the casing, the position detecting sensors being

disposed in the moving direction of the moving body such that a distance between two neighboring position detecting sensors is shorter than a length of the linear scale.

5 6. The transfer mechanism of claim 1, wherein the horizontally driving unit is a linear motor mechanism including armature coils installed in the casing along the moving direction of the moving body and a field magnet installed on the moving body; and

10 a separation wall for airtightly separating the armature coil from the inside of the transfer chamber is installed in the casing.

15 7. The transfer mechanism of claim 1, further comprising a magnetic levitation device for levitating the moving body from the guide rail.

20 8. The transfer mechanism of claim 1, further comprising a gas jetting levitation device for levitating the moving body from the guide rail.

25 9. The transfer mechanism of claim 1, wherein a partition wall for dividing the transfer chamber into an upper portion and a lower portion is installed in the casing;
 the holding body of the elevation supporting structure is disposed in the upper portion of the transfer chamber

while the moving body is disposed in the lower portion of the transfer chamber;

the partition wall has a slit for allowing the supporting member of the elevation supporting structure to
5 move therethrough; and

the transfer mechanism further includes:

a gas supplying system for supplying an inactive gas to the upper portion of the transfer chamber, and

a gas exhausting system for evacuating the gas from
10 the lower portion of the transfer chamber.

10. A transfer mechanism for transferring an object to be processed, comprising:

a casing for defining a transfer chamber under a
15 vacuum state, the casing having a transfer port for transferring the object between the transfer chamber and an outside thereof;

a guide rail substantially horizontally installed in the transfer chamber;

20 a moving part movably installed on the guide rail, the moving part including a holding body for holding the object;

a horizontally driving unit for moving the moving part along the guide rail;

a position detecting linear scale installed on the
25 moving part and extending in a moving direction of the moving part; and

a plurality of position detecting sensors installed at a height corresponding to the linear scale, on an inner surface of the casing, the position detecting sensors being disposed in the moving direction of the moving part such that a distance between two neighboring position detecting sensors is shorter than a length of the linear scale.

11. A processing system comprising:

(a) a main transfer mechanism including:

10 a casing for defining a main transfer mechanism under a vacuum state, the casing having a plurality of transfer ports;

a guide rail substantially horizontally installed in the transfer chamber;

15 a moving body movably installed on the guide rail;

a horizontally driving unit for moving the moving body along the guide rail;

an elevation supporting structure having a holding body for holding an object to be processed and a supporting member for vertically movably connecting the holding body to the moving body; and

an elevation mechanism for raising and lowering the supporting member of the elevation supporting structure with respect to the moving body;

25 (b) an auxiliary transfer mechanism including a casing for defining an auxiliary transfer chamber under a vacuum

state which selectively communicates with the main transfer chamber; and an auxiliary transfer unit installed in the auxiliary transfer chamber;

5 (c) a load-lock mechanism including a casing for defining a load-lock chamber which selectively communicates with the auxiliary transfer chamber and is selectively evacuated;

10 (d) an entrance transfer mechanism including a casing for defining an entrance transfer chamber under an atmospheric state which selectively communicates with the load-lock chamber; and an entrance transfer unit installed in the entrance transfer chamber;

15 (e) a cassette station connected to the entrance transfer chamber, for mounting therein a cassette container which accommodates a plurality of objects to be processed;

20 (f) a plurality of individual transfer mechanisms installed to correspond to the respective transfer ports of the main transfer mechanism, each of the individual transfer mechanisms including a casing for defining an individual transfer chamber under a vacuum state which selectively communicates with the main transfer chamber via the corresponding transfer port; and an individual transfer unit installed in the individual transfer chamber; and

25 (g) a plurality of processing apparatuses installed to correspond to the respective individual transfer mechanisms, each of the processing apparatuses including a casing for

defining a vacuum processing chamber which selectively communicates with the corresponding individual transfer chamber, and performing a predetermined process on the object therein.

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12. The processing system of claim 11, wherein the casing of the main transfer mechanism includes at least one of a plurality of casing segments connectable with each other, each of the casing segments having at least one of the transfer ports; and

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the guide rail includes at least one of a plurality of guide rail segments connectable with each other.